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Sheridon

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[54] **HIGHLIGHT COLOR TWISTING BALL DISPLAY**

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[52] **U.S. Cl.** **345/107**; 359/296; 264/4.1; 264/8; 349/86; 349/89; 428/320.2; 428/323; 428/402.21; 252/299.01

[58] **Field of Search** 345/107; 428/320.2, 428/323, 402.21; 359/296; 349/86, 89; 264/4.1, 8; 252/299.01

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[57] **ABSTRACT**

A multisegmented, highlight color ball for an electrical twisting ball display device made up of spheroidal balls rotatably disposed in an elastomer substrate. The ball is composed of segments arrayed substantially parallel to one another, each segment being adjacent to at least one other segment and to no more than two other segments, adjacent segments being adjoined to one another at substantially planar interfaces. Each segment has an optical modulation characteristic, the optical modulation characteristics of adjacent segments being different from one another. The segments include: a central segment having a thickness; a first interior segment, situated adjacent to the central segment and having a thickness less than the central segment thickness; a second interior segment, situated opposite the first interior segment with respect to the central segment and having a thickness less than the central segment thickness; a first exterior segment; and a second exterior segment. The central segment can be of a background color; the first interior segment can be of a foreground color; the second interior segment can be of a highlight color; and the exterior segments can be transparent. The ball has an anisotropy for providing an electrical dipole moment, the electrical dipole moment rendering the ball electrically responsive such that when the ball is rotatably disposed in a nonoscillating electric field while the electrical dipole moment of the ball is provided, the ball tends to rotate to an orientation in which the electrical dipole moment aligns with the field. Also disclosed are: an apparatus made up of a substrate in which are disposed the aforementioned balls, together with electrodes to facilitate a rotation of balls rotatably disposed therein; and a method for using this apparatus.

27 Claims, 32 Drawing Sheets